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| 10/555,614 | 11/04/2005 | Daisuke Miura | 03500.109594 | 4514 |
| 5514 7590 09/03/2008 FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112 | | | | |
| EXAMINER MALDONADO, JULIO J | | | | |
| ART UNIT 2823 | | PAPER NUMBER | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/555,614

Applicant(s)

MIURA ET AL.

Examiner

JULIO J. MALDONADO

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-10 is/are allowed.
- 6) ☒ Claim(s) 1 and 4-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicants' cancellation of claims 2 and 3 and 11 to 37 as set forth in the reply filed on 05/27/2008 is acknowledged.
2. Claims 1, 4-10 are pending in the application.

Claim Objections

3. Claim 4 is objected to because of the following informalities: claim 4 depends on cancelled claim 3. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aramaki et al. (U.S. 7,193,237 B2, hereinafter Aramaki) in view of Bao et al. (U.S. 6,981,237 B1, hereinafter Bao).

In reference to claim 1, Aramaki (Figs.1A-1D) teaches a field effect transistor having an organic semiconductor device comprising an organic semiconductor layer (1) containing at least porphyrin; and a gate dielectric layer (2) being laminated on or under the organic semiconductor layer (1) so as to be in intimate contact with the organic semiconductor layer (1), wherein said gate dielectric layer (2) is "...a material having an

insulating property...such as polymethyl methacrylate, polystyrene, polyvinylphenol, polyimide, polycarbonate, polyester, polyvinyl alcohol, polyvinyl acetate, polyurethane, polysulfone, an epoxy resin or a phenol resin, a copolymer prepared by a combination thereof, an oxide such as silicon dioxide, aluminum oxide or titanium oxide, a ferroelectric oxide such as SrTiO_3 or BaTiO_3 , a nitride such as silicon nitride, a dielectric such as a sulfide or fluoride, or a polymer having such dielectric particles dispersed therein, may be mentioned..." (Aramaki column 29, line 56 – column 30, line 40).

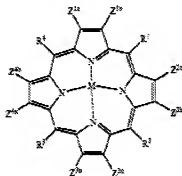
Aramaki fails to disclose wherein said layer having said insulating property is composed of at least a polysilsesquioxane compound.

However, Bao (Fig.3) teaches an organic thin film transistor including a gate dielectric layer (3) made of a polysilsesquioxane having, for example, methyl or methyl phenyl groups (Bao, column 3, lines 48 – 64 and column 4, lines 29 – 62).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Aramaki and Bao to enable the gate dielectric layer of Aramaki according to the teachings of Bao for the further advantage of having a dielectric film having a high breakdown voltage and good long-term stability, and have low surface trapping densities, good surface smoothness and low concentrations of ionic impurities (Bao, column 4, lines 29 – 46). Furthermore, the fact that the combination of elements was "obvious to try" might show that such combination was obvious under 35 U.S.C. §103, since, if there is design need or market pressure to solve problem, and there are finite number of identified, predictable

solutions, person of ordinary skill in art has good reason to pursue known options within his or her technical grasp, and if this leads to anticipated success, it is likely product of ordinary skill and common sense, not innovation. KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385 (U.S. 2007).

In reference to claims 4 and 5, the combined teachings of Aramaki and Bao teach wherein the porphyrin compound is represented by the general formula:



wherein each of Z^{1a} and Z^{1b} ($i=1$ to 4) represents a monovalent organic group, and Z^{1a} and Z^{1b} may be bonded to form a ring, wherein said monovalent organic group may, for example, be a hydrogen atom, a hydroxyl group, a C_{1-10} alkyl group which may be substituted, an alkoxy group, a mercapto group, an acyl group, a carboxyl group or its ester with a C_{1-10} alcohol, a formyl group, a carbamoyl group, a halogen atom such as fluorine, chlorine, bromine or iodine, an amino group which may be substituted by a $C_{sub.1-10}$ alkyl group, or a nitro group, and such a group may further have a substituent, wherein Z^{1a} and Z^{1b} are bonded to form a ring, the ring formed by the structure $Z^{1a}-CH=CH-Z^{1b}$, may, for example, be an aromatic hydrocarbon such as a benzene ring, a naphthalene ring or an anthracene ring, a heterocyclic ring such as a pyridine ring, a quinoline ring, a furan ring or a thiophene ring, or a non-aromatic cyclic

hydrocarbon such as a cyclohexene, wherein each of R^1 to R^4 is a hydrogen atom or a monovalent organic group such as an alkyl group which may be substituted, an aryl group, an alkoxy group, a mercapto group, an ester of a carboxyl group with a C_{1-10} alcohol, or a halogen atom and wherein M is a bivalent metal atom, such as Zn, Cu, Fe, Ni or Co, for example (Aramaki, column 10, line 46 – column 11, line 54).

In reference claim 6, the combined teachings of Aramaki and Bao substantially teach all aspects of the invention but fail to disclose wherein the aromatic ring formed by the at least one pair of the adjacent R_{11} in the general formula is obtained by heating a precursor having a bicyclo[2, 2, 2] octadiene skeleton structure.

Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., In re Gamero, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979). Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by

a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

Allowable Subject Matter

6. Claims 7-10 are allowed.

Response to Arguments

7. Applicant's arguments with respect to claims 1 and 4-6 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JULIO J. MALDONADO whose telephone number is (571)272-1864. The examiner can normally be reached on Mon-Fri, 8:00 A.M.-4:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on (571)-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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